

IN THE CLAIMS:

1. (Currently Amended) A broadcasting apparatus that broadcasts a specific program to which a reproduction time period between a starting time and a finishing time is specified, the reproduction being performed by a receiving apparatus to display the specific program in the reproduction time period, the broadcasting apparatus comprising:

5 allotment unit ~~operable to allot~~ allocating a broadcasting bandwidth for the reproduction time period to the specific program and allotting a part of the broadcasting bandwidth for a preceding time period immediately before the reproduction time period to the specific program and the other part of the broadcasting bandwidth to another program, so that the part of the broadcasting bandwidth ~~for the preceding time period allotted to the specific program~~ is narrower than the other part of the broadcasting bandwidth allotted to another program, the preceding time period being longer than a time period that is necessary for transmitting a program data of the specific program ~~at least once more than once~~ during the part of the broadcasting bandwidth for the preceding time period allotted to the specific program;

15 script generation unit ~~operable to generate~~ generating (a) when the receiving apparatus receives an event message for instructing storage, a script of instruction for the receiving apparatus to store for storing program data of the specific program in a storage unit of the receiving apparatus, and (b) when the receiving apparatus receives an event message for instructing reproduction, a script of instruction for the receiving apparatus to perform the reproduction to display reproduce the program data of the specific program in a case where the 20 program data of the specific program has been stored in the storage unit, each script of the scripts being automatically stored when the receiving apparatus receives the script;

an event message generation unit ~~operable to generate~~ generating the event message for instructing storage and the event message for instructing reproduction;

transmission unit ~~operable to transmit~~ transmitting a normal program that includes
25 a video stream and an audio stream, and further in accordance with the result of allotment by the allotment unit, (a) repeatedly multiplex program data of the other program with the normal program based on a data carousel transmission method and transmit resultant [[a]] first multiplexed ~~result data while multiplexing the program data of the specific program and the script with the normal program and transmitting a second multiplexed result in prior to~~ the preceding time period, [[and]] (b) repeatedly multiplex [[the]] program data of the specific program, the program data of the other program, and the script with the normal program based on the data carousel transmission method and transmit [[the]] resultant second multiplexed data result in the reproduction preceding time period[[;]], and (c) repeatedly multiplex the program data of the specific program and the script with the normal program based on the data carousel transmission method and transmit resultant third multiplexed data in the reproduction time period; and

control unit ~~operable to control~~ controlling the transmission unit to repeatedly transmit event message for instructing storage in the preceding time period and to transmit the event message for instructing reproduction at the starting time,

40 wherein the specific program has the program data that relates to a commercial message which is inserted in the normal program, and

the reproduction time period of the specific program is the same as a broadcast time period of the commercial message.

2.-3. (Cancelled)

4. (Previously Presented) The broadcasting apparatus of Claim 1, further comprising:

a storage unit [[for]] storing as the program data of the specific program (a) first contents data that makes up the specific program and (b) second contents data that is different from the first contents data in part,

5 wherein the transmission unit transmits the first contents data in the preceding time period and transmits the second contents data in the reproduction time period of the specific program.

5.-8. (Cancelled)

9. (Currently Amended) A broadcasting apparatus that transmits a data broadcasting program and a first and a second specific programs which are inserted in the data broadcasting program, a total time period between a starting time and a finishing time for broadcasting the data broadcasting program including a first time period during which the first specific program is broadcast and a second time period during which the second specific program is broadcast, reproduction being performed by a receiving apparatus to display the specific program in the respective time periods, the broadcasting apparatus comprising:

allotment unit ~~operable to~~

10 (a) ~~allot~~ allotting a part of the broadcasting bandwidth to the first and the second specific programs and the other part of the broadcasting bandwidth to the data broadcasting program for all of the time periods other than the first and the second time periods in the total time-period, so that the part of the broadcasting bandwidth allotted to the first and the second specific programs for all time periods other than the first and the second time periods is narrower than the other part of the broadcasting bandwidth allotted to the data broadcasting

15 program for all time periods other than the first and the second time periods, all of the time periods other than the first and the second time periods being longer than the time period necessary for transmitting a program data of the first specific program and a program data of the second specific program ~~more than at least~~ once during the part of the broadcasting bandwidth allotted to the first and the second specific programs for all time periods other than the first and
20 the second time periods, and

(b) ~~allot allotting~~ a part of the broadcasting bandwidth to the first specific program and the other part of the broadcasting bandwidth to the second specific program for the first and the second time periods;

script instruction generation unit ~~operable to~~ (i) ~~generate generating~~ (a) when a
25 receiving apparatus receives a first event message for instructing storage, a script ~~for storing of instruction for the receiving apparatus to store~~ program data of the first specific program in a storage unit of the receiving apparatus and (b) when the receiving apparatus receives a second event message for instructing storage, a script ~~for storing of instruction for the receiving apparatus to store the~~ program data of the second specific program in [[the]] ~~a storage unit of the receiving apparatus and~~ (ii) ~~generate generating~~ (a) when receiving a first event message for instructing reproduction, a script instructing the receiving apparatus to reproduce the program data of the first specific program in a case that the program data of the first specific program has been stored in the storage unit and (b) when receiving a second event message for instructing reproduction, a script for the receiving apparatus to reproduce the program data of the second specific program in a case that the program data of the second specific program has been stored in the storage unit, each script being automatically stored when the receiving apparatus receives the script;

an event message generation unit ~~operable to generate~~ generating the plurality of event messages for instructing storage and the plurality of event messages for instructing 40 reproduction;

transmission unit ~~operable to transmit~~ transmitting a normal program that includes a video stream and an audio stream, and

- (a) repeatedly transmit the scripts during the total time period, and
- (b) in accordance with the result of allotment by the allotment unit,

45 (i) repeatedly multiplex the program data of the data broadcasting program during all of time periods other than the first and the second time periods in the total time period, and

(ii) repeatedly multiplex the program data of each of the first and the second specific programs during the total time period; and

50 control unit ~~operable to control~~ controlling the transmission unit so as to transmit (a) the first event message for instructing storage before the first time period (b) the first event message for instructing reproduction at the starting time of the first time period (c) the second event message for instructing storage before the second time period, and (d) the second event message for instructing reproduction at the starting time of the second time period,

55 wherein in accordance with the result of allotment by the allotment unit, repeatedly multiplex program data of the first and second specific program with the normal program based on a data carousel transmission method and transmit a first multiplexed result while multiplexing the program data of the first and second specific programs and the script with the normal program and transmitting a second multiplexed result in the preceding time period, 60 and repeatedly multiplex the program data of the specific first and second programs and the

script with the normal program and transmit the second multiplexed result in the reproduction time period,

the first specific program and the second specific program respectively have the program data that relates to a first commercial program and a second commercial program which
65 are inserted in the normal program, and

the first time period and the second time period respectively are the same as broadcast time periods of the first commercial program and the second commercial program.

10. (Cancelled)

11. (Currently Amended) The broadcasting apparatus of Claim 9, further comprising:
storage unit ~~operable to store~~ storing as the program data of the first specific program (a) first contents data that makes up the first specific program and (b) second contents data that is different from the first contents data in part,

5 wherein the transmission unit transmits the first contents data in a time period other than the first time period in the total time period, and transmits the second contents data in the first time period.

12. (Currently Amended) A broadcasting apparatus that transmits a data broadcasting program and a first and a second specific programs which are inserted in the data broadcasting program, the reproduction being performed by a receiving apparatus to display the specific programs in specific reproduction time periods, the broadcasting apparatus comprising:

5 allotment unit operable to allocating

(a) allocate a broadcasting bandwidth for a first time period and a second time period to the first specific program and the second specific program, the first time period and the

second time period are included in a total time period between a starting time and a finishing time for broadcasting the data broadcasting program, and

10 (b) allot (1) a broadcasting bandwidth to the data broadcasting data program in the total time period except for the first time period and the second time period (2) a part of the broadcasting bandwidth to the first specific program for a time period preceding to the first time period in the total time period, so that the part of the broadcasting bandwidth allotted to the first specific program for the time period preceding to the first time period is narrower than the 15 broadcasting bandwidth allotted to the data broadcasting program for the time period preceding to the first time period, the time period preceding to the first time period being longer than a time period that is necessary for transmitting a program data of the first specific program ~~more than at least~~ once during the part of the broadcasting bandwidth allotted to the first specific program for the time period preceding to the first time period, and (3) a part of the broadcasting bandwidth to 20 the second specific program for a time period preceding to the second time period in the total time period, so that the part of the broadcasting bandwidth allotted to the second specific program for the time period preceding to the second time period is narrower than the broadcasting bandwidth allotted to the data broadcasting program for the time period preceding to the second time period, the time period preceding to the second time period being longer than 25 a time period that is necessary for transmitting a program data of the second specific program ~~more than at least~~ once during the part of the broadcasting bandwidth allotted to the second specific program for the time period preceding to the second time period;

script instruction unit ~~operable to~~ (i) generate generating (a) when [[a]] the receiving apparatus receives a first event message for instructing storage, a script for storing of 30 instruction for the receiving apparatus to store the program data of the first specific program in a storage unit of the receiving apparatus and (b) when the receiving apparatus receives a second

event message for instructing storage, a script for storing of instruction for the receiving apparatus to store the program data of the second specific program in the storage unit and (ii) generate generating (a) when receiving a first event message for instructing reproduction, a script 35 instructing the receiving apparatus to reproduce the program data of the first specific program in a case that the program data of the specific program has been stored in the storage unit and (b) when receiving a second event message for instructing reproduction, a script instructing the receiving apparatus to reproduce the program data of the second specific program in a case that the program data of the second specific program has been stored in the storage unit, each script 40 being automatically stored when the receiving apparatus receives the script;

an event message generation unit ~~operable to generate~~ generating a plurality of event messages for instructing storage and a plurality of event messages for instructing reproduction;

transmission unit ~~operable to transmit~~ transmitting a normal program that includes 45 a video stream and an audio stream and
(a) repeatedly transmit during the total time period, and
(b) in accordance with the result of allotment by the allotment unit,
(i) transmit repeatedly the program data of the data broadcasting program during all of time periods other than the first and the second time periods in the total 50 time period,

(ii) repeatedly multiplex the program data of the first specific program during the first time period and the time period preceding to the first time period, and
(iii) repeatedly multiplex the program data of the second specific program during the second time period and the time period preceding to the second time period;

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control unit operable to control controlling the transmission unit so as to transmit
(i) a plurality of the first event messages for instructing storage before the first time period (ii) a
plurality of the second event messages for instructing storage before the second time period (iii)
the first event message for instructing reproduction at the starting time of the first time period,
60 and (iv) the second event message for instructing reproduction at the starting time of the second
time period,

wherein in accordance with the result of allotment by the allotment unit,
repeatedly multiplex program data of the first and second specific program with the normal
program based on a data carousel transmission method and transmit a first multiplexed result
65 data while multiplexing the program data of the first and second specific programs and the script
with the normal program and transmitting a second multiplexed result in the preceding time
period, and repeatedly multiplex the program data of the specific first and second programs and
the script with the normal program and transmit the second multiplexed result data in the
reproduction time period,

70 the first specific program and the second specific program respectively have the
program data that relates to a first commercial program and a second commercial program which
are inserted in the normal program, and

the first time period and the second time period respectively are the same as
broadcast time periods of the first commercial program and the second commercial program.

75 13. (Cancelled)

14. (Currently Amended) The broadcasting apparatus of Claim 12, further
comprising:

storage unit ~~operable to store~~ storing as the program data of the first specific program (a) first contents data that makes up the first specific program and (b) second contents data that is different from the first contents data in part,

80 wherein the transmission unit transmits the first contents data in a time period preceding to the first time period in the total time period, and transmits the second contents data in the first time period.

15. (Currently Amended) A broadcasting method for broadcasting a specific program to which a reproduction time period between a starting time and a finishing time is specified, the reproduction being performed by a receiving apparatus to display the specific program in the reproduction time period, the broadcasting method comprising the steps of:

5 an allotment step for allotting, with an allotment unit, a broadcasting bandwidth for the reproduction time period to the specific program and allotting a part of the broadcasting bandwidth for a preceding time period immediately before the reproduction time period to the specific program and the other part of the broadcasting bandwidth to another program, so that the part of the broadcasting bandwidth ~~for the preceding time period allotted to the specific program~~ is narrower than the other part of the broadcasting bandwidth ~~allotted to another program~~, the preceding time period being longer than a time period that is necessary for transmitting a program data of the specific program ~~more than at least~~ once during the part of the broadcasting bandwidth for the preceding time period allotted to the specific program;

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15 a script generation step for generating, with a script generation unit, (a) when the receiving apparatus receives [[a]] an event message for instructing storage, a script ~~for storing of instruction for the receiving apparatus to store~~ program data of the specific program in a storage unit of the receiving apparatus, and (b) when the receiving apparatus receives an event message

for instructing reproduction, a script of instruction for the receiving apparatus to reproduce perform the reproduction to display the program data of the specific program in a case where the
20 program data of the specific program has been stored in the storage unit, each script being automatically stored when the receiving apparatus receives the script;

an event message generation step for generating, with an event generation unit, a plurality of event messages for instructing storage and an event message for instructing reproduction;

25 a transmission step for transmitting, with a transmission unit, a normal program that includes a video stream and an audio stream, and further in accordance with the result of allotment in the allotment step, (a) repeatedly multiplex program data of the other program with the normal program based on a data carousel transmission method and transmit [[a]] resultant first multiplexed result data while multiplexing the program data of the specific program and the script with the normal program and transmitting a second multiplexed result in prior to the preceding time period, and (b) repeatedly multiplex [[the]] program data of the specific program, the program data of the other program and the script with the normal program based on the data carousel transmission method and transmit [[the]] resultant second multiplexed result data in the reproduction preceding time period; and (c) repeatedly multiplex the program data of the specific program and the script with the normal program based on the data carousel transmission method and transmit resultant third multiplexed data in the reproduction time period; and

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a control step operable for controlling, with a control unit, [[a]] the transmission unit to transmit the plurality of event messages for instructing storage in the preceding time period and to transmit the event message for instructing reproduction at the starting time,

40 wherein the specific program has the program data that relates to a commercial message which is inserted in the normal program, and

the reproduction time period of the specific program is the same as a broadcast time period of the commercial message.

16. (Currently Amended) A broadcasting method for broadcasting a data broadcasting program and a first specific program and a second specific program which are inserted in the data broadcasting program, a total time period between a starting time and a finishing time for broadcasting the data broadcasting program including a first time period 5 during which the first specific program is broadcast and a second time period during which the second specific program is broadcast, reproduction being performed by a receiving apparatus to display the specific program in the respective time periods, the broadcasting method comprising the steps of:

an allotment step for

10 (a) allotting, with an allocating unit, a part of the broadcasting bandwidth to the first and the second specific programs and the other part of the broadcasting bandwidth to the data broadcasting program for all of time periods other than the first and the second time periods in the total time period, so that the part of the broadcasting bandwidth allotted to the first and the second specific programs for all time periods other than the first and the second time periods is narrower than the other part of the broadcasting bandwidth allotted to the data broadcasting program for all time periods other than the first and the second time periods, all of the time periods other than the first and the second time periods being longer than the time period necessary for transmitting a program data of the first specific program and a program data of the second specific program ~~more than at least~~ once during the part of the broadcasting bandwidth
15 allotted to the first and the second specific programs for all time periods other than the first and the second time periods, and
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(b) allotting a part of the broadcasting bandwidth to the first specific program and the other part of the broadcasting bandwidth to the second specific program for the first and the second time periods;

25 a script instruction generation step for (i) generating, with a script generator, (a) when a receiving apparatus receives a first event message for instructing storage, a script ~~for storing of instruction for the receiving apparatus to store~~ program data of the first specific program in a storage unit of the receiving apparatus and (b) when receiving a second event message for instructing storage, a script ~~for storing of instruction for the receiving apparatus to~~ 30 store program data of the second specific program in the storage unit, and (ii) generating (a) when receiving a first event message for instructing reproduction, a script for the receiving apparatus to reproduce the program data of the first specific program in a case that the program data of the specific program has been stored in the storage unit and (b) when receiving a second event message for instructing reproduction, a script for the receiving apparatus to reproduce the 35 program data of the second specific program in a case that the program data of the second specific program has been stored in the storage unit, each script being automatically stored when the receiving apparatus receives the scripts;

an event message generation step for generating, with an event message generator, a plurality of event messages for instructing storage and a plurality of event messages 40 for instruction reproduction; and

a transmission step for transmitting, with a transmission unit, a normal program that includes a video stream and an audio stream, and

45 (a) repeatedly transmitting the scripts during the total time period, transmitting the first event messages for instructing storage before the first time period (ii) the first event message for instruction reproduction at the starting time of the first time period (iii)

the second event messages for instructing storage before the second time period, and (iv) the second event message for instruction reproduction at the starting time of the second time period, and

50 (b) in accordance with the result of allotment by the allotment step,
(i) repeatedly multiplex the program data of the data broadcasting program during all of time periods other than the first and second time periods in the total time period, and with the normal program based on a data carousel transmission unit,
(ii) repeatedly multiplex the program data of each of the first and the second specific programs during the total time period with the normal program;
55 wherein, the first and the second specific programs have the program data that relates to first and second commercial messages, respectively, which are inserted in the normal program, and

the reproduction time period of the specific program is the same as a broadcast time period of the commercial message.

17. (Currently Amended) A broadcasting method for broadcasting a data broadcasting program and a first specific program and a second specific program which are inserted in the data broadcasting program, reproduction being performed by a receiving apparatus to display the specific program in the respective time period, the broadcasting method
5 comprising the steps of:

an allotment step for (a) allotting, with an allocating unit, a broadcasting bandwidth for a first time period and a second time period to the first specific program and the second specific program, the first time period and the second time period are included in a total time period between a starting time and a finishing time for broadcasting the data broadcasting

10 program, and (b) allotting (1) a broadcasting bandwidth to the data broadcasting data program in the total time period except for the first time period and the second time period (2) a part of the broadcasting bandwidth to the first specific program for a time period preceding to the first time period in the total time period, so that the part of the broadcasting bandwidth allotted to the first specific program for the time period preceding to the first time period is narrower than the broadcasting bandwidth allotted to the data broadcasting program for the time period preceding to the first time period, the time period preceding to the first time period being longer than a time period that is necessary for transmitting a program data of the first specific program ~~more than at least~~ once during the part of the broadcasting bandwidth allotted to the first specific program for the time period preceding to the first time period, and (3) a part of the broadcasting bandwidth to 15 the second specific program for a time period preceding to the second time period in the total time period, so that the part of the broadcasting bandwidth allotted to the second specific program for the time period preceding to the second time period is narrower than the broadcasting bandwidth allotted to the data broadcasting program for the time period preceding to the second time period, the time period preceding to the second time period being longer than a time period that is necessary for transmitting a program data of the second specific program ~~more than at least~~ once during the part of the broadcasting bandwidth allotted to the second specific program for the time period preceding to the second time period;

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a script instruction generation step for (i) generating, with a script instruction generation unit, (a) when receiving a first event message for instructing storage, a script for storing of instruction for the receiving apparatus to store program data of the first specific program in a storage unit of [[a]] the receiving apparatus and (b) when receiving a second event message for instructing storage, a script for storing of instruction for the receiving apparatus to store program data of the second specific program in the storage unit, and (ii) generating (a)

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when receiving a first event message for instructing reproduction, a script instructing the
35 receiving apparatus to reproduce the program data of the first specific program in a case that the
program data of the specific program has been stored in the storage unit and (b) when receiving a
second event message for instructing reproduction, a script instructing the receiving apparatus to
reproduce the program data of the second specific program in a case that the program data of the
second specific program has been stored in the storage unit, each script being automatically
40 stored when the receiving apparatus receives the scripts;

an event message generation step for generating, with an event message generator, a plurality of first event messages for instructing storage, a plurality of second event messages for instructing storage, a first event message for instructing reproduction and a second event message for instructing reproduction; and

45 a transmission step for transmitting, with a transmission unit, a normal program that includes a video stream and an audio stream and further in accordance with the allotment step

repeatedly transmitting (i) the first event messages for instructing storage before the first time period (ii) the second event messages for instructing storage before the second time period 50 (iii) the first event message for instructing reproduction at the starting time of the first time period, and (iv) the second event message for instructing reproduction at the starting time of the second time period, during the total time period, and

(b) in accordance with the result of allotment by the allotment unit,
(i) repeatedly multiplexing the program data of the data broadcasting 55 program during all of time periods other than the first and the second time periods in the total time period,

(ii) repeatedly multiplexing the program data of the first specific program during the first time period and the time period preceding to the first time period, and

(iii) repeatedly multiplexing the program data of the second specific 60 program during the second time period and the time period preceding to the second time period; and

wherein, in accordance with the result of allotment by the allotment unit, repeatedly multiplex program data of the first and second specific program with the normal program based on a data carousel transmission method and transmit a first multiplexed result 65 while multiplexing the program data of the first and second specific programs and the script with the normal program and transmitting a second multiplexed result in the preceding time period, and repeatedly multiplex the program data of the specific first and second programs and the script with the normal program and transmit the second multiplexed result in the reproduction time period,

70 the first and the second specific programs have the program data that relates to first and second commercial messages, respectively, which are inserted in the normal program, and

the reproduction time period of the specific program is the same as a broadcast time period of the commercial message.

18. (Currently Amended) A program recording medium storing instructions of a data broadcast program which [[is]] are readable [[for]] by a computer, in a broadcasting apparatus, to perform operations to enable the broadcasting apparatus broadcasts to broadcast a specific program to which a reproduction time period between a starting time and finishing time is 5 specified, the reproduction being performed by a receiving apparatus, to display the specific

program in the reproduction time period, a computer the data broadcast program embodied on the program recording medium has the computer conduct the steps of:

an allotment step for allotting a broadcasting bandwidth for the reproduction time period to the specific program and allotting a part of the broadcasting bandwidth for a preceding time period immediately before the reproduction time period to the specific program and the other part of the broadcasting bandwidth to ~~either another~~ program, so that the part of the broadcasting bandwidth ~~for the preceding time period allotted to the specific program~~ is narrower than the other part of the broadcasting bandwidth ~~allotted to another program~~, the preceding time period being longer than a time period that is necessary for transmitting a program data of the specific program ~~more than at least~~ once during the part of the broadcasting bandwidth for the preceding time period allotted to the specific program;

a script generation step for generating (a) when the receiving apparatus receives an event message for instructing storage, a script ~~for storing~~ of instruction for the receiving apparatus to store program data of the specific program in a storage unit of the receiving apparatus, and (b) when the receiving apparatus receives an event message for instructing reproduction, a script of instruction for the receiving apparatus to ~~reproduce~~ perform the reproduction to display the program data of the specific program in a case where the program data of the specific program has been stored in the storage unit, each script being automatically stored when the receiving apparatus receives the ~~scripts~~ script;

25 [[a]] an event message generation step for generating a plurality of event message messages for instructing storage and an event message for instructing reproduction; and

in accordance with the result of allotment by [[the]] an allotment unit, repeatedly multiplex program data of the first and second specific ~~program~~ programs with [[the]] a normal program based on a data carousel transmission method and transmit a first multiplexed ~~result~~

30 data while multiplexing the program data of the first and second specific programs and [[the]] a
script of instruction for the receiving apparatus to store data with the normal program and
transmitting a second multiplexed result data in the preceding time period, and repeatedly
multiplex the program data of the specific first and second programs and the script of instruction
with the normal program and transmit the second multiplexed result data in the reproduction time
35 period,

a control step for controlling [[the]] a transmission unit to transmit the event
messages for instructing storage in the preceding time period and to transmit the event message
for instructing reproduction at the starting time,

wherein, the specific program has the program data that relates to a commercial
40 message which is inserted in the normal program, and

the reproduction time period of the specific program is the same as a broadcast
time period of the commercial message.

19. (Currently Amended) A program recording medium storing instructions on a data
broadcast program which [[is]] are readable [[for]] by a computer, in a broadcasting apparatus, to
perform operations to enable the broadcasting apparatus transmits to transmit a data broadcasting
program and a first and a second specific programs which are inserted in the data broadcasting
5 program, a total time period between a starting time and a finishing time for broadcasting the
data broadcasting program including a first time period during which the first specific program is
broadcast and a second time period during which the second specific program is broadcast, a
computer reproduction being performed by a receiving apparatus to display the specific program
in the respective time periods, the data broadcast program embodied on the program recording
10 medium has the computer conduct the steps of:

an allotment step for

(a) allotting, with an allocating unit, a part of the broadcasting bandwidth to the first and the second specific programs and the other part of the broadcasting bandwidth to the data broadcasting program for all of time periods other than the first and the second time periods in the total time period, so that the part of the broadcasting bandwidth allotted to the first and the second specific programs for all time periods other than the first and the second time periods is narrower than the other part of the broadcasting bandwidth allotted to the data broadcasting program for all time periods other than the first and the second time periods, all of the time periods other than the first and the second time periods being longer than the time period necessary for transmitting a program data of the first specific program and a program data of the second specific program ~~more than~~ at least once during the part of the broadcasting bandwidth allotted to the first and the second specific programs for all time periods other than the first and the second time periods, and

(b) allotting a part of the broadcasting bandwidth to the first specific program and the other part of the broadcasting bandwidth to the second specific program for the first and second time periods;

a script instruction generation step for (i) generating, with a script generator, (a) when a receiving apparatus receives a first event message for instructing storage, a script for ~~storing of instruction for the receiving apparatus to store~~ program data of the first specific program in a storage unit of the receiving apparatus and (b) when receiving a second event message for instructing storage, a script for ~~storing of instruction for the receiving apparatus to store~~ program data of the second specific program in the storage unit, and (ii) generating (a) when receiving a first event message for instructing reproduction, a script instructing the receiving apparatus to reproduce the program data of the first specific program in a case that the

35 program data of the first specific program has been stored in the storage unit and (b) when receiving a second event message for instructing reproduction, script instructing the receiving apparatus to reproduce the program of the second specific program in a case that the program data of the second specific program has been stored in the storage unit, each script being automatically stored when the receiving apparatus receives the scripts;

40 an event message generation step for generating, with an event message generator, a plurality of first event messages for instructing storage, a plurality of second event messages for instructing storage, a first event message for instructing reproduction and a second event message for instructing reproduction; and

45 a transmission step for transmitting, with a transmission unit, a normal program that includes a video stream and an audio stream, and

repeatedly transmitting the scripts during the total time period, transmitting (i) the first event messages for instructing storage before the first time period, the first event message for instructing reproduction at the starting time of the first time period (iii) the second event messages for instructing storage before the second time period, and (iv) the second event 50 message for instructing reproduction at the starting time of the second time period,

(b) in accordance with the result of allotment by the allotment step,
(i) repeatedly multiplex the program data of the data broadcasting program with the normal program based on a data carousel transmission method during all of time periods other than the first and the second time periods in the total time period, and
55 (ii) repeatedly multiplex the program data of each of the first and the second specific program during the total time period;

wherein, the first and the second specific programs have the program data that relates to first and second commercial messages, respectively, which are inserted in the normal program, and

60 the reproduction time period of the specific program is the same as a broadcast time period of the commercial message.

20. (Currently Amended) A program recording medium which is readable [[for]] by a computer in a broadcasting apparatus, the broadcasting apparatus transmits a data broadcasting program and a first and a second specific programs which are inserted in the data broadcasting program, reproduction being performed by a receiving apparatus to display the specific program 5 in the respective time period, a computer program embodied stored, with machine readable instructions, on the program recording medium has the computer conduct the steps of:

an allotment step for
(a) allotting, with an allocating unit, a broadcasting bandwidth for a first time period and a second time period to the first specific program and the second specific program, 10 the first time period and the second time period are included in a total time period between a starting time and a finishing time for broadcasting the data broadcasting program, and (b) allotting (1) a broadcasting bandwidth to the data broadcasting data program in the total time period except for the first time period and the second-time period (2) a part of the broadcasting bandwidth to the first specific program for a time period preceding to the first time period in the 15 total time period, so that the part of the broadcasting bandwidth allotted to the first specific program for the time period preceding to the first time period is narrower than the broadcasting bandwidth allotted to the data broadcasting program for the time period preceding to the first time period, the time period preceding to the first time period being longer than a time period

that is necessary for transmitting a program data of the first specific program more than once
20 during the part of the broadcasting bandwidth allotted to the first specific program for the time period preceding to the first time period, and (3) a part of the broadcasting bandwidth to the second specific program for a time period preceding to the second time period in the total time period, so that the part of the broadcasting bandwidth allotted to the second specific program for the time period preceding to the second time period is narrower than the broadcasting bandwidth
25 allotted to the data broadcasting program for the time period preceding to the second time period, the time period preceding to the second time period being longer than a time period that is necessary for transmitting a program data of the second specific program more than once during the part of the broadcasting bandwidth allotted to the second specific program for the time period preceding to the second time period;

30 a script instruction generation step for (i) generating, with a script instruction generation unit, (a) when a receiving apparatus receives a first event message for instructing storage, a script for storing of instruction for the receiving apparatus to store program data of the first specific program in a storage unit of the receiving apparatus and (b) when receiving a second event message for instructing storage, a script for storing of instruction for the receiving apparatus to store program data of the second specific program in the storage unit and (ii) generating (a) when receiving a first event message for instructing reproduction, a script instructing the receiving apparatus to reproduce the program data of the first specific program in a case that the program data of the specific program has been stored in the storage unit and (b) when receiving a second event message for instructing reproduction, a script instructing the receiving apparatus to reproduce the program data of the second specific program in a case that the program data of the second specific program has been stored in the storage unit, each script being automatically stored when the receiving apparatus receives the scripts;

an event message generation step for generating, with an event message generator, a plurality of first event messages for instructing storage, a plurality of second event messages for instructing storage, a first event message for instructing reproduction and a second event message for instructing reproduction; and

45 a transmission step for transmitting, with a transmission unit, a normal program that includes a video stream and an audio stream, and

repeatedly transmitting (i) the first storage instructions before the first time period
50 (ii) the second storage instructions before the second time period (iii) the first reproduction instruction at the starting time of the first time period, and (iv) the second reproduction instruction at the starting time of the second time period, and

(b) in accordance with the result of allotment by the allotment step
55 (i) repeatedly multiplex the program data of the data broadcasting program during all of time periods other than the first and the second time periods in the total time period, and

55 (ii) repeatedly multiplex the program data of each of the first specific program during the first time period and the time period preceding to the first time timer period; and

60 (iii) repeatedly multiplex the program data of the second specific program during the second time period and the time period preceding to the second time period;

wherein, in accordance with the result of allotment by the allotment step, repeatedly multiplex program data of the first and second specific program with the normal program based on a data carousel transmission method and transmit a first multiplexed result 65 while multiplexing the program data of the first and second specific programs and the script with the normal program and transmitting a second multiplexed result in the preceding time period,

and repeatedly multiplex the program data of the specific first and second programs and the script with the normal program and transmit the second multiplexed result in the reproduction time period,

70 the first and the second specific programs have the program data that relates to first and second commercial messages, respectively, which are inserted in the normal program, and

the reproduction time period of the specific program is the same as a broadcast time period of the commercial message.

21. (Currently Amended) A recording medium storing a program with instructions that [[is]] are readable [[for]] by a computer in a broadcasting apparatus, the broadcasting apparatus broadcasts a specific program to which a reproduction time period between a starting time and finishing time is specified, the reproduction being performed by a receiving apparatus
5 to display the specific program in the reproduction time period, the program has the computer conduct the steps of:

an allotment step for allotting, with an allotment unit, a broadcasting bandwidth for the reproduction time period to the specific program and allotting a part of the broadcasting bandwidth for a preceding time period immediately before the reproduction time period to the
10 specific program and the other part of the broadcasting bandwidth to another program, so that the part of the broadcasting bandwidth ~~for the preceding time period allotted to the specific program~~ is narrower than the other part of the broadcasting bandwidth ~~allotted to another program~~, the preceding time period being longer than a time period that is necessary for transmitting a program data of the specific program ~~more than at least~~ once during the part of the broadcasting
15 bandwidth for the preceding time period allotted to the specific program;

a script generation step for generating, with a script generation unit, (a) when receiving apparatus receives an event message for instructing storage, a script ~~for storing of instruction for the receiving apparatus to store~~ program data of the specific program in a storage unit of the receiving apparatus, and (b) when the receiving apparatus receives an event message 20 for instructing reproduction, a script for the receiving apparatus to ~~reproduce~~ perform the reproduction to display the program data of the specific program in a case where the program data of the specific program has been stored in the storage unit, each script being automatically stored when the receiving apparatus receives the scripts;

an event message generation step for generating, with an event generation unit, a 25 plurality of event messages for instructing storage and an event message for instructing reproduction;

a transmission step for transmitting, with a transmission unit, a normal program that includes a video stream and an audio stream, and further in accordance with the result of allotment in the allotment step, (a) repeatedly multiplex program data of the other program with 30 the normal program based on a data carousel transmission method and transmit a first multiplexed ~~data prior to result while multiplexing the program data of the specific program and the script with the normal program and transmitting a second multiplexed result in the preceding time period, and repeatedly multiplex the program data of the specific program and the script with the normal program, the program data of the other program and the script with the normal program based on the data carousel transmission method and transmit resultant second multiplexed data in the preceding time period; and (c) repeatedly multiplex the program data of the specific program and the script with the normal program based on the data carousel transmission method and transmit resultant third multiplexed data in the reproduction processing~~

time period and transmit the resultant second multiplexed result data in the reproduction 40 preceding time period; and

a control step operable for controlling, with a control unit, [[a]] the transmission unit to transmit the event messages for instructing storage in the preceding time period and to transmit the event message for instructing reproduction at the starting time,

wherein the specific program has the program data that relates to a commercial 45 message which is inserted in the normal program, and

the reproduction time period of the specific program is the same as a broadcast time period of the commercial message.

22. (Currently Amended) A recording medium storing program with instructions that [[is]] are readable [[or]] by a computer in a broadcasting apparatus, the broadcasting apparatus transmits a data broadcasting program, and a first and a second specific programs which are inserted in the data broadcasting program, a total time period between a starting time and a 5 finishing time for broadcasting the data broadcasting program including a first time period during which the first specific program is broadcast and a second time period during which the second specific program is broadcast, reproduction being performed by a receiving apparatus to display the specific program in the respective time periods, the program has the computer conduct the steps of:

10 an allotment step for

(a) allotting, with an allocating unit, a part of the broadcasting bandwidth to the first and the second specific programs and the other part of the broadcasting bandwidth to the data broadcasting program for all of time periods other than the first and the second time periods in the total time period, so that the part of the broadcasting bandwidth allotted to the first and the

15 second specific programs for all time periods other than the first and the second time periods is narrower than the other part of the broadcasting bandwidth allotted to the data broadcasting program for all time periods other than the first and the second time periods, all of the time periods other than the first and the second time periods being longer than the time period necessary for transmitting a program data of the first specific program and a program data of the
20 second specific program ~~more than~~ at least once during the part of the broadcasting bandwidth allotted to the first and the second specific programs for all time periods other than the first and the second time periods, and

(b) allotting a part of the broadcasting bandwidth to the first specific program and the other part of the broadcasting bandwidth to the second specific program for the first and
25 the second time periods;

a script instruction generation step for (i) generating, with a script generator, (a) when a receiving apparatus receives a first event message for instructing storage, a script ~~for storing of instruction for the receiving apparatus to store~~ program data of the first specific program in a storage unit of the receiving apparatus and (b) when receiving a second event
30 message for instructing storage, a script ~~for storing of instruction for the receiving apparatus to store~~ program data of the second specific program in the storage unit, and (ii) generating (a) when receiving a first event message for instructing reproduction, a script for the receiving apparatus to reproduce the program data of the first specific program in a case that the program data of the specific program has been stored in the storage unit and (b) when receiving a second
35 event message for instructing reproduction, a script for the receiving apparatus to reproduce the program data of the second specific program in a case that the program data of the second specific program has been stored in the storage unit, each script being automatically stored when the receiving apparatus receives the scripts;

an event message generation step for generating, with an event message generator, a plurality of first event messages for instructing storage, a plurality of second event messages for instructing storage, a first event message for instructing reproduction and a second event message for instructing reproduction; and

a transmission step for transmitting, with a transmission unit, a normal program that includes a video stream and an audio stream, and

45 (a) repeatedly transmitting the scripts during the total time period, transmitting the first event messages for instructing storage before the first time period (ii) the first event message for instructing reproduction at the starting time of the first time period (iii) the second event messages for instructing storage before the second time period, and (iv) the second event message for instructing reproduction at the starting time of the second time period,

50 and

(b) in accordance with the result of allotment by the allotment step,
(i) repeatedly multiplex the program data of the data broadcasting program during all of time periods other than the first and second time periods in the total time period, and with the normal program based on a data carousel transmission

55 (ii) repeatedly multiplex the program data of each of the first and the second specific programs during the total time period with the normal program;

wherein, the first and the second specific programs have the program data that relates to first and second commercial messages, respectively, which are inserted in the normal program, and

60 the reproduction time period of the specific program is the same as a broadcast time period of the commercial message.

23. (Currently Amended) A recording medium storing a program with instructions that [[is]] are readable [[for]] by a computer in a broadcasting apparatus, the broadcasting apparatus transmits a data broadcasting program and a first and a second specific programs which are inserted in the data broadcasting program, reproduction being performed by a 5 receiving apparatus to display the specific program in the respective time period, the program has the computer conduct the steps of:

an allotment step for (a) allotting, with an allocating unit, a broadcasting bandwidth for a first time period and a second time period to the first specific program and the second specific program, the first time period and the second time period are included in a total 10 time period between a starting time and a finishing time for broadcasting the data broadcasting program, and (b) allotting (1) a broadcasting bandwidth to the data broadcasting data program in the total time period except for the first time period and the second time period (2) a part of the broadcasting bandwidth to the first specific program for a time period preceding to the first time period in the total time period, so that the part of the broadcasting bandwidth allotted to the first 15 specific program for the time period preceding to the first time period is narrower than the broadcasting bandwidth allotted to the data broadcasting program for the time period preceding to the first time period, the time period preceding to the first time period being longer than a time period that is necessary for transmitting a program data of the first specific program more than at least once during the part of the broadcasting bandwidth allotted to the first specific program for 20 the time period preceding to the first time period, and (3) a part of the broadcasting bandwidth to the second specific program for a time period preceding to the second time period in the total time period, so that the part of the broadcasting bandwidth allotted to the second specific program for the time period preceding to the second time period is narrower than the

broadcasting bandwidth allotted to the data broadcasting program for the time period preceding
25 to the second time period, the time period preceding to the second time period being longer than
a time period that is necessary for transmitting a program data of the second specific program
~~more than at least~~ once during the part of the broadcasting bandwidth allotted to the second
specific program for the time period preceding to the second time period;

30 a script instruction generation step for (i) generating, with a script instruction
generation unit, (a) when receiving a first event message for instructing storage, a script ~~for~~
~~storing of instruction for the receiving apparatus to store~~ program data of the first specific
program in a storage unit of [[a]] the receiving apparatus and (b) when receiving a second event
message for instructing storage, a script ~~for storing of instruction for the receiving apparatus to~~
~~store~~ program data of the second specific program in the storage unit, and (ii) generating (a)
35 when receiving a first event message for instructing reproduction, a script instructing the
receiving apparatus to reproduce the program data of the first specific program in a case that the
program data of the specific program has been stored in the storage unit and (b) when receiving a
second event message for instructing reproduction, a script instructing the receiving apparatus to
reproduce the program data of the second specific program in a case that the program data of the
40 second specific program has been stored in the storage unit, each script being automatically
stored when the receiving apparatus receives the scripts;

[[a]] an event message generation step for generating, with an event message
generator, a plurality of first storage instructions, a plurality of second storage instructions, a first
reproduction instruction and a second reproduction instruction; and

45 a transmission step for transmitting, with a transmission unit, a normal program
that includes a video stream and an audio stream and further in accordance with the allotment
step

repeatedly transmitting (i) the first event messages for instructing storage before the first time period (ii) the second event messages for instructing storage before the second time period (iii) the first event message for instructing reproduction at the starting time of the first time period, and (iv) the second event message for instructing reproduction at the starting time of the second time period, during the total time period, and

50 (b) in accordance with the result of allotment by the allotment unit,

(i) repeatedly multiplexing the program data of the data broadcasting program during all of time periods other than the first and the second time periods in the total time period,

55 (ii) repeatedly multiplexing the program data of the first specific program during the first time period and the time period preceding to the first time period, and

(iii) repeatedly multiplexing the program data of the second specific program during the second time period and the time period preceding to the second time period;

60 and

wherein, in accordance with the result of allotment by the allotment unit, repeatedly multiplex program data of the first and second specific program with the normal program based on a data carousel transmission method and transmit a first multiplexed result 65 while multiplexing the program data of the first and second specific programs and the script with the normal program and transmitting a second multiplexed result in the preceding time period, and repeatedly multiplex the program data of the specific first and second programs and the script with the normal program and transmit the second multiplexed result in the reproduction time period,

70 the first and the second specific programs have the program data that relates to
first and second commercial messages, respectively, which are inserted in the normal program,
and

the reproduction time period of the specific program is the same as a broadcast time period of the commercial message.

24. (Currently Amended) A broadcasting method for reducing television receiver latencies in displaying an interactive content portion of broadcast television commercials, the method comprising the steps of:

assigning a television program to a first time slot and a commercial to a second

5 time slot immediately after the first time slot;

allocating a first portion of the available bandwidth of the first time slot to audiovisual content of the television program;

allocating a second portion of the available bandwidth of the first time slot to a specific program having interactive content for a commercial, so that the second portion of the

10 available bandwidth of the first time slot is narrower than the first portion of the available bandwidth of the first time slot, the first time slot being longer than a time period necessary for transmitting a program data of the specific program having interactive content for the commercial more than at least once during the second portion of the available bandwidth of the first time slot;

allocating a second portion of the available bandwidth of the second time slot to audiovisual content of the commercial;

transmitting the audiovisual content of the television program during the first time

20 slot;

repeatedly transmitting in a carousel format the specific program during the first time slot;

transmitting the audiovisual content of the commercial during the second time slot;

25 repeatedly transmitting in a carousel format the specific program during the second time slot,

transmitting a script for storing the specific program,

transmitting a script for executing the specific program, and

receiving and storing the specific program at the television receiver.

25.-28. (Cancelled)

29. (Currently Amended) A broadcasting apparatus that broadcasts a specific program to which a reproduction time period between a starting time and a finishing time is specified, the reproduction being performed by a receiving apparatus to display the specific program in the reproduction time period, the broadcasting apparatus comprising:

5 allotment unit operable to allot a broadcasting bandwidth for the reproduction time period to the specific program and allotting a part of the broadcasting bandwidth for a preceding time period immediately before the reproduction time period to the specific program and the other part of the broadcasting bandwidth to another program;

script generation unit operable to generate (a) when the receiving apparatus receives an event message for instructing storage, a script of instruction for the receiving apparatus to store for storing program data of the specific program in a storage unit of the

receiving apparatus, and (b) when the receiving apparatus receives an event message for instructing reproduction, a script of instruction for the receiving apparatus to reproduce to display the program data of the specific program in a case where the program data of the specific 15 program has been stored in the storage unit, each script being automatically stored when the receiving apparatus receives the script;

event message generation unit operable to generate the event message for instructing storage and the event message for instructing reproduction;

transmission unit operable to transmit a normal program that includes a video 20 stream and an audio stream, and further in accordance with the result of allotment by the allotment unit, repeatedly multiplex program data of the other program with the normal program based on a data carousel transmission method and transmit a first multiplexed result while multiplexing the program data of the specific program and the script with the normal program and transmitting a second multiplexed result in the preceding time period, and repeatedly 25 multiplex the program data of the specific program and the script with the normal program and transmit the second multiplexed result in the reproduction time period, and repeatedly transmit, as an event message independent of the specific program, each script generated by the script generation unit in a cycle different from a cycle of the specific program; and

control unit operable to control the transmission unit to transmit the event 30 message for instructing storage generated by the event message generation unit in the preceding time period and to transmit the event message for instructing reproduction generated by the event message generation unit at the starting time,

wherein the specific program has the program data that relates to a commercial message which is inserted in the normal program, and

35 the reproduction time period of the specific program is the same as a broadcast
time period of the commercial message.